

EvtGen Problems at CDF

Software out of date

- file structure reorganized
- bug fixes
- improved decay models
- some dependencies removed

Conflicts with other CDF software

- EvtGen/HERWIG conflicts using PHOTOS
- JETSET/Pythia decay models
- Precision between generator and decayer

Infrastructure landmines

- Particle definitions (codes) and properties
- Mixing/CP violation

Physics

- Baryon decay models
- Polarization
- Mixing/CP violation

Priority List

- I. Upgrade software to 12/03 version
 - Allow for future upgrades
 - Remove EvtGen specific version of JETSET (out of date at CDF)
 - Remove PHOTOS from EvtGen
 - Improve decay models/bug fixes
- II. Separate CDF specific software to new package
 - Simplify future upgrades
 - Remove CDF software idiosyncrasies (easier to debug interface)
- III. Correct EvtGen/PDG particle code difference
 - Fixes problems with interfaces (StdHep)
- IV. Read particle definitions/properties from a file (ParticleDB)
 - Reduces problems with new CDF software releases
- V. Convert HepEvt to 'double'
 - Removes energy conservation problems induced by high momentum particles.

EvtGen Resources

EvtGen Primary References

- <http://www.slac.stanford.edu/~lange/EvtGen>
- Anders Ryd (ryd@slac.stanford.edu)
- David Lange (lange@stanford.slac.edu)

CDF Internal web pages/notes

- <http://ncdf67.fnal.gov/~tesarek/EvtGen> (Release notes)
- “User Guide for EvtGen @ CDF”, **CDFnote: 5618**
- Rick Tesarek (tesarek@fnal.gov)
- Frank Wuerthwein (fkw@fnal.gov)